FAA | AVIATION NEWS

NOVEMBER 1963

F E D E R A L A V I A T I O N A G E N C Y

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VOL. 2, NO. 7 NOVEMBER 1963

COVER

Spectators lining observation deck located near base of control tower at Dulles International Airport (see page 8).

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PROGRESS RECOUNTED AS FAA CELEBRATES FIFTH BIRTHDAY

. . . To provide for the regulation and promotion of civil aviation in such manner as to best foster its development and safety, and to provide for the safe and efficient use of the airspace by both civil and military aircraft . . .

Five years ago, the newly constituted Federal Aviation Agency began carrying out this Congressional mandate.

The time was propitious: The number of aircraft—with varying performance characteristics—was increasing at a phenomenal rate. Aviation was poised on the threshold of the civil jet age as jet aircraft, introduced into airline service, began to pose new safety problems. The first task was to modernize the neglected airways. (*see* box next page)

Each day in 1959, on the average, a new navaid or air traffic control facility was put into service. The radar beacon system was introduced, giving air traffic controllers the ability to identify aircraft more quickly and positively.

Medical Research

FAA focused on the human element in flight safety and established a Civil Aeromedical Research Institute at Oklahoma City to study the human capabilities of pilots, passengers, air traffic controllers. No comprehensive research of medical standards had been undertaken for 34 years. New rules were adopted which prohibited operation of aircraft by pilots with serious medical disabilities—diabetes, epilepsy, drug addiction, etc.

Regulations to improve air safety were adopted. Airline pilots were required to retire from airline flying at age 60; airborne weather radar became mandatory on the nation's airlines; FAA flight inspectors enforced the requirement that flight crew members on commercial flights remain at their duty stations.

Introduction of commercial jet operations at many more of the country's airports, as well as increased operations of all types at major air terminals, posed an aircraft noise problem second in seriousness only to safety. FAA prescribed use of preferential runways, special arrival and departure routes, minimum altitudes. Cooperative efforts of FAA and the Federal Housing Administration resulted in a new Federal policy on financing homes being built near airports. Commercial training operations were removed from noise sensitive areas to outlying airports. While the noise problem was not solved, it was held at bay without shackling the progress of air transportation.

For general aviation pilots, Flight Following Service was initiated. Pre-flight and in-flight services comparable to those available to the airlines were provided pilots who filed VFR flight plans and had two-way radio.

At the end of 1960, FAA was operating and maintaining 9,500 air navigation and air traffic control facilities at an annual cost of more than $300 million.

When N. E. Halaby took office as administrator in March, 1961, he took a close look at the national aviation system.

Three major task forces were appointed and went to work. Project Horizon took the long look and defined national aviation goals.

Project Beacon provided the blueprint for modernizing the air traffic control system.

Project Tightrope examined the rulemaking and enforcement area. The result was establishment of an FAA Regulatory Council to serve as a central rulemaking forum. To safeguard airmen's rights, a policy was established to conduct trial-type hearings on possible rule infractions, using regional hearing officers prior to certificate revocation or suspension.

Airport Program

Need for a vigorous airport program was apparent, particularly for general aviation which operates nearly 85,000 airplanes compared to 2,100 operated by the airlines. An Airports Service was established within the FAA to administer the Federal-Aid Airport Program and other airport matters. Since January 1, 1961, under the Federal-Aid Airport Program, 743 airports have received $211,882,003 in Federal funds which included $27,083,418 to assist in establishing and constructing 96 new airports. Local service airlines serve about 728 of the nation's 8,084 airports on record, while general aviation probably uses all of them. New airport criteria permit general aviation fields to be built according to specific community needs. Research and development projects were started on low cost instrument landing and lighting systems for these airports, as well as an all-weather landing system.

Administrator Halaby recognized the growing importance of general aviation pilots, whose aircraft fleet is expected to increase to 105,000 by 1970. He created the FAA Office of General Aviation Affairs "to resolve the problems and meet the requirements of this growing segment of aviation, to provide liaison with aviation groups, and, in general, to better serve aviation."

In the field of aircraft maintenance, a high-speed communications system feeds airline daily mechanical malfunction reports into the FAA. Summaries of these reports are available to the airlines within 24 hours. They are also used by FAA to alert general aviation operators of large aircraft to potentially dangerous incidents. An aviation mechanics awards program was established in recognition of the mechanics' importance to air safety.

Savings Effected

In the continuing program of FAA-military cooperation, joint use of long range radars by FAA and the military services has already saved taxpayers $30 million. The figure will climb above $50 million under present radar joint use plans. Joint use of other facilities such as VORs will save the taxpayers an additional $10.5 million.

Another way of saving money—at least $100 million in the next 16 years—and to increase efficiency and safety at the same time, is to reduce the number of Air Route Traffic Control Centers from 29 to 21 by January, 1965. Center areas will be larger to reflect increasing aircraft speeds and shaped to conform to traffic flow. Efficiency stems from fewer Center boundaries to cross with fewer communications and fewer handoffs. As a result, pilots and controllers will be less busy.

During the past year, steps have been taken to bring the FAA closer to those it serves through a decentralization program, placing authority to make operating decisions in the hands of the men in the field who have the facts and are close to the aviation public.

As aviation nears its 60th year, and the Federal Aviation Agency begins its sixth, the future seems dazzling. In the offing is the most dramatic advance in recent aviation development—the American supersonic transport that may be flying by FAA's 10th birthday.

Fatal Weather Accidents Higher During Onset of Winter Says CAB

Fatal general aviation accidents involving weather are more likely to occur during the three-month period of October-November-December than at any other time of year.

This finding was disclosed in a recently-released study by the Civil Aeronautics Board. The study analyzed such factors as flying time, pilot age, type of pilot certificate, weather briefing service, and season of the year as they pertain to fatal general aviation accidents involving weather. It included 306 weather accidents in 1960, 1961 and 1962.

More than 35 per cent of the 306 accidents occurred during October, November, December. The study concluded that "this is most likely an indication of difficulties involved with the onset of winter weather."

In each of 306 cases, an effort was made to determine if the pilot had received a preflight weather briefing. Information was obtained in 157 cases—109 affirmative and 48 negative. The remaining 149 were classified "unknown."

The study also revealed that no flight plan was filed in 196 instances. Interestingly enough, 41 of the 48 pilots who did not receive a weather briefing also did not file a flight plan. On the other hand, 69 of the 109 pilots known to have received a briefing did file a flight plan of some type.

Other findings include:

- Most fatal accidents involving weather happen to pilots having 100-299 hours total flying time. The most obvious explanation for this, the study concluded, "would appear to be that the inexperienced pilots tend to be relatively cautious, but by the time the 100-299 hour category is reached there is a tendency toward overconfidence and a mistaken idea of the ability to cope with certain weather situations."
- The more experience a pilot has in one specific type aircraft, the less likely he will be to have a fatal accident in that aircraft.
- Forty-nine of the pilots involved in the 306 accidents had instrument ratings. Average total flying time for these pilots was 4,477 hours and the average number of actual instrument hours was 346.
- Holders of private pilot certificates accounted for 60.5 per cent of the total accidents. Next were commercial pilots with 25.9 per cent, students with 10.8 per cent, and ATR with 2.8 per cent. These figures are proportionate to the number of active pilots holding such certificates.

PIPER PROMOTES LOW COST AIRPARKS ACROSS U.S.

Bill Piper's in the airport business. The veteran plane maker is setting up and actively promoting a plan to put small, minimum cost airparks in towns across the United States.

Major tool in the new Piper program is a small do-it-yourself handbook describing in detail all the steps necessary to construct and operate a small airport.

The booklet, *Add an Airpark*, begins with instructions on how to organize a local sponsoring group. It lists criteria for determining whether an airpark is needed as well as criteria for selecting a site. Other subjects covered include the legal and technical problems of acquiring the chosen site, laying out the runway, and finishing off and operating the completed airport.

Piper's effort derives its urgency from the dwindling availability of land. "Your area," says Mr. Piper, "is sure to find that it must have an airpark now or later. Now is the time to get the land while you can."

And in a foreword to the booklet, N. E. Halaby, Administrator of the Federal Aviation Agency, writes: "Though the airline system is well advanced, much remains to be done for the great future of general aviation . . . No airport plan can reach home to the people without thousands of more airparks such as Mr. Piper urges. The 50-state organization of FAA stands ready to give all possible encouragement, technical advice and aid."

Add an Airpark has already proved a best seller. The original run of 5,000 copies was exhausted soon after printing and an additional printing of 50,000 copies was made. Among those sponsoring the Piper program is the U. S. Junior Chamber of Commerce which endorsed and adopted it as a nation-wide effort.

The booklet is based on a series of articles by Kendall K. Hoyt in recent issues of *Airport Services Management*. Free copies of *Add an Airpark* are available to interested individuals and organizations. Write to Operation Airpark, Piper Aircraft Corporation, Lock Haven, Pennsylvania.

AIRWAYS DEVELOPMENT 1958-1963

	Fiscal Year Ending June 30, 1958	Fiscal Year Ending June 30, 1963
Airports (civil)	6,018	8,084
Aircraft (civil)	69,700	86,300
Scheduled Carriers	1,900	2,100
General Aviation	67,800	84,200
Pilots	247,000	366,000
Airports with FAA Towers [1]	215	272
Airports with FAA Radar	48	71
Airports with Instrument Landing Systems	173	220
Airport Lighting Units	111	219
Traffic Control Centers [2]	35	32
Center Radars	25	71
New Center Buildings	0	21
Flight Service Stations [3]	434	413
VOR/VORTAC Navaids	641	802
Low Frequency Ranges [4]	324	138
Remote Center Air/Ground Comm Sites	231	343
Federal Airways (miles)	182,000	360,000
Positive Control Coverage (miles)	7,000 (below 22,000 feet)	7,000 (below 22,000 feet) plus over 1 million square miles of area above 24,000 feet
Passengers Transported	53.2 million	70.6 million
Aircraft Hours Flown	15.5 million	18.3 million
Aircraft Operations (landings and take-offs)	26.3 million	29 million
Aircraft Under Instrument Rules Controlled by Centers	8.3 million	10 million
Aircraft Under Instrument Rules Controlled by Towers	5.1 million	7 million
Flight Plans Originated with Flight Service Stations	1,156,000	3.7 million
Enroute Aircraft Contacted by Flight Service Stations [5]	9.2 million	7.3 million

1. Includes tower service from combined flight service station/tower facilities.
2. Decrease in number of centers proceeding in accord with planned center consolidation program.
3. Includes stations part of combined station/tower facilities.
4. Decrease in low frequency ranges in accord with plan to modernize airways with VOR/VORTAC navaids.
5. Decrease in number of aircraft contacts due to increased installation of direct air/ground peripheral communications sites.

EXTEND TRAFFIC CONTROL TO COVER AIR DEFENSE

FAA air traffic control services will be expanded next February to cover air defense activities, thereby increasing safety margins of both civil and military air operations.

Through joint FAA-military cooperation, certain phases of the airborne interceptor operations during peacetime of the Continental Air Defense Command (CONAD) in Colorado Springs, will be conducted within FAA's air traffic control system.

"This is a milestone in air traffic control and in FAA-CONAD relations," FAA Administrator N. E. Halaby said. "The recent history of all reported near mid-air collisions shows that about one-half involve military aircraft of the various military organizations. By working closer with air defense units, we will be furthering our objective of eliminating control of aircraft by two separate agencies in the same airspace. This is now possible because of the increasing capacity of FAA's air traffic control system."

In the new method, air defense activities will be conducted in the same FAA traffic control system which controls all other traffic operating IFR. In all missions the air defense controller will monitor all phases of the operation.

Halaby said that both he and General John K. Gerhart, Commander-in-Chief of CONAD, agree that inclusion of part of CONAD's intercept operations within FAA's traffic control system would improve safety to both civil and military aircraft and more effective FAA support to the nation's total military capability.

Halaby pointed out that identification and interception of simulated military targets as well as unknown aircraft are vital to the national security. In all cases, the critical phases of intercept operations will be controlled by military air defense facilities in accordance with special procedures established by FAA and CONAD. In no case will civil aircraft be used as targets for practice interceptions.

These procedures are defined in an FAA "Authorization for Interceptor Operations" (A-F-I-O) recently issued to the Continental Air Defense Command. The AFIO permits CONAD to conduct certain intercepts under its own jurisdiction when definite prerequisites are met and it has been determined that such missions cannot be fulfilled within the common control system. FAA will furnish military control facilities with information on known traffic that might be operating in the military intercept airspace.

Due to the nature of interceptor operations, practically all flights in the past were controlled from takeoff to landing by military air defense facilities.

Plans are under way to establish additional communications capability between FAA's air traffic control and CONAD control facilities. FAA and CONAD are setting up training programs to familiarize personnel of both organizations with each other's operations. These actions are expected to reduce the potential collision factor and provide safer operations for both civil and military aircraft.

VIDEO BRIEFING AIDS PILOTS

A new system to brief pilots via closed-circuit television is operating on a test basis at Lambert Field-St. Louis Airport. Utilizing a television camera located in the FAA Flight Service Station, a picture can be transmitted to any of three remote monitors scattered around the airport. A pilot can use an intercom to speak directly to the FAA flight service specialist on duty. By means of the camera-monitor arrangement, the pilot is then shown the appropriate weather charts and NOTAMS related to his route of flight. The present three installations are remoted by coaxial cable. Two more planned will use a microwave link.

Agency Publishes Civil Aircraft Register, Statistical Handbook

The first published list of all active civil aircraft in the U. S. has been issued by the FAA.

Entitled *United States Civil Aircraft Register*, the 1200-page publication includes more than 100,000 active aircraft. The term "active aircraft" is defined as one with an airworthiness certificate issued or renewed by FAA within the past five years.

Aircraft are listed by registration number together with the name and address of the owner of record. Also included is such aircraft information as make, model, manufacturer's serial number, year manufactured and date of last inspection. The number of engines and their make, model and type also are listed.

The register was prepared through use of automatic data processing equipment and was made possible by the recent transfer to magnetic tape of all aircraft records at the FAA Aeronautical Center in Oklahoma City.

The register will be published semi-annually by FAA. The first edition is now available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. The price is $5.25 per copy.

Also available from the Superintendent of Documents is the 1962 edition of the *FAA Statistical Handbook of Aviation*. The 151-page publication includes all available statistics on major civil aviation activities through December 31, 1961. Price is 65 cents.

LANDING FACILITIES INCREASE

Landing facilities available to the nation's civil airmen showed a sizeable increase in 1962.

As of December, 1962, there were 8,062 civil and joint-use airports, seaplane bases and heliports listed by the FAA in the fifty states. This represented a net increase of 347 over the total of 7,715 landing facilities reported in the previous year. Total airports, both inside the fifty states and in Puerto Rico, the Virgin Islands and in the South Pacific were 8,084.

Texas, reporting a total of 621 landing facilities, leads the list of states having the most airports. California is second with 505, and in third place is Alaska with 431 landing facilities. California, however, with 12,073 planes, has the largest number of aircraft based within its borders. Texas follows with 7,325 and Michigan is third with 5,446.

STATE AVIATION MECHANIC AWARD WINNERS NAMED

Aviation mechanics in 35 States and Puerto Rico were judged winners last month in FAA's first Aviation Mechanic Safety Awards program.

A certificate cites the winners "for demonstrating skill and imagination in developing the outstanding contribution to safety in general aviation through maintenance practices. . . ."

Winning aviation mechanics were selected by state committees composed of state aviation directors and technical experts. Selections were made from several hundred entries from mechanics engaged in private and business aviation activities.

Each state winner is eligible as a nominee for a regional award—a plaque—in the general aviation category, to be selected later this month. Regional awards will be made in FAA's eight regions. Alaska and Hawaii are naming only regional winners rather than state winners.

Separate regional awards also will be presented to air carrier mechanics.

In December, two national winners will be chosen from the regional winners—one a general aviation mechanic and the other an air carrier. A committee of nationally prominent aviation officials, administered by the Flight Safety Foundation, will select the national winners. Winners will receive a trophy sponsored by American Aviation Publications.

The Aviation Mechanic Safety Awards program was established earlier this year by Administrator Halaby as part of "1963—Aviation Maintenance Year." It was developed to give increased recognition to the vital role played by aviation mechanics. State, regional and national awards will be made annually, based on safety contributions made during the previous year. The program has the enthusiastic support of the aviation industry.

State award winners were:

Alabama: *Birmingham,* Millard Jewell, The Rust Engineering Co.; **Arizona:** *Scottsdale,* Joseph S. Wischler, Mercury Aviation Inc.; **Arkansas:** *Conway,* Dennis Cantrell, self-employed; **California:** *El Cajon,* Chester W. Owen, Convair-San Diego; **Delaware:** *Wilmington,* Arthur W. Hague, Atlantic Aviation Corp.; **Florida:** *Miami,* Chester W. Alsdorf, Sun Line Aircraft Maintenance Corp.; **Georgia:** *Riverdale,* H. D. Gerald, Southern Airways Co.; **Idaho:** *Boise,* Norton G. Stubblefield, Morrison-Knudsen Co.; **Illinois:** *Springfield,* Carl E. Stine, Capitol Aviation, Inc.; **Indiana:** *Fort Wayne,* Michael Petras, Zollner Corp.; **Iowa: Des Moines,** Roger D. Frick, Elliott Flying Service, Inc.; **Kansas:** *Overland Park,* Lawrence Joseph Walter, Spencer Chemical Co.; **Kentucky:** *Owensboro,* Richard H. Peck, Texas Gas Transmission Corp.; **Louisiana:** *Shreveport,* Sam W. Ketchum, Southern Aircraft Corp.; **Maine:** *Portland,* Davies Harold Katz, Forest City Aviation Inc.; **Michigan:** *Plymouth,* William J. Granton, Burroughs Corp.; **Minnesota:** *Minneapolis,* Edward B. Caldwell, Peavey Co.; **Mississippi:** *Starkville,* Robert Earl White, Mississippi State University; **Missouri:** *Creve Coeur,* Harold E. Roberts, St. Louis Flying Service, Inc.; **Montana:** *Great Falls,* Robert Edward Huston, Skyway Aircraft Repair; **Nebraska:** *Lincoln,* Erwin A. Schwarzkopf, Lincoln Aviation Institute, Inc.; **New Jersey:** *Wyckoff,* Frederic Hayunga, Olin Mathieson Chemical Co.; **New York:** *Pearl River,* George R. Williams, American Can Co.; **North Carolina:** *Charlotte,* Everette E. Deal, Southeast Airmotive Corp.; **North Dakota:** *Williston,* James E. Stevens and Laverne Kerbaugh, Aero Spraying Service, Inc.; **Ohio:** *Columbus,* Charles E. Cook, State of Ohio Highway Patrol; **Oklahoma;** *Oklahoma City,* Edward L. Weir, Aircraftsmen, Inc.; **Pennsylvania:** *Lebanon,* Dean Donald Deibler, Reading Aviation Services Inc.; **South Carolina:** *Columbia,* Emil H. Koon, Aircraft Sales and Service; **South Dakota:** *Spearfish,* Clark Alan Burton, Busfield Air Service; **Tennessee:** *Nashville,* Ray Montgomery, Capitol Airways; **Texas:** *San Antonio,* Edward J. Swearingen, Jr., self-employed; **Vermont:** *South Burlington,* George L. Hall, Northern Airways; **Virginia:** *Franklin,* William Donovan Guyer, Union Bag-Camp Paper Co.; **Wisconsin:** *Hales Corners,* Charles H. Napier, Outboard Marine Corp.; **Puerto Rico:** *Rio Piedras,* Roberto Montes, Department of Education, Nato Rey.

Virginia Seeks to Improve Flight Instruction in State

The Commonwealth of Virginia last month set up a program to improve the flying proficiency and instructional ability of Virginia flight instructors with the idea that better teachers would produce better and safer pilots.

The Commonwealth allotted $10,000 to cover the cost of a week of intensive flight training for 40 Virginia flight instructors. The money was used to rent aircraft and pay room and board expenses. In addition, each instructor received $100 while attending the course.

Subjects covered in the course included flight maneuvers, psychology of training, air traffic control and other subjects involved in securing a private pilot's license. Much of the instruction was given by FAA personnel.

Allen C. Perkinson, Director of the Commonwealth's Division of Aeronautics, expressed appreciation to those organizations which made the course possible—"the fixed base operators, the Virginia Aviation Trades Association, the Weather Bureau and the FAA."

Reynolds Appointed Deputy in FAA Office of General Aviation Affairs

Robert V. Reynolds has been named Deputy Assistant Administrator of the Agency's Office of General Aviation Affairs.

In the Deputy position, Reynolds will serve the growing needs of the general aviation community which has over 95%—approximately 84,000—of the total number of U. S. active civil aircraft. Reynolds will serve under William Schulte, Assistant Administrator for General Aviation Affairs.

Prior to his new appointment, Reynolds was Deputy Director of FAA's Southwest Region, headquartered in Fort Worth. He has been with the Agency 16 years.

In naming Reynolds to the post FAA Administrator N. E. Halaby stated that Reynolds' experience and leadership both in Washington and the field make him exceptionally qualified for the position, which is significant to the successful accomplishment of the Agency's mission in general aviation.

Reynolds' first position with the Agency (then Civil Aeronautics Administration) in 1947 was as Airman Standards Inspector in Denver. He continued to serve in positions of increasing responsibility in the areas of flight operations and air-worthiness. In December 1957, he was named Chief of the General Safety Division in the Eastern Region (New York), and in September 1958 he transferred to the Western Region (Los Angeles) in the same capacity.

Prior to World War II, Reynolds owned and operated a fixed base operation and provided basic pilot training under the government sponsored Civilian Pilot Training Program.

During the war he served as a military ferry pilot with overseas duty in the China-Burma-India Theatre.

AIRLINES PROPOSE DELIVERY POSITIONS FOR SSTs

Four United States airlines last month indicated their intention of placing initial orders for a total of 29 supersonic airliners to be developed under an FAA-headed program of government assistance to the aviation industry.

The carriers were Trans World Airlines, Pan American World Airways, American Airlines and Flying Tiger Lines.

TWA and Pan American formally proposed arrangements for delivery positions of 21 of these aircraft—TWA 6 and Pan Am 15. They submitted advance royalty payments to the government of $2.1 million. Under the SST development program, airlines that purchase and operate the airplane will pay both advance royalties and a later 1.5 per cent royalty on income from SST operations to reimburse government development costs on the plane.

American and Flying Tiger announced they were ready to issue comparable proposals for six and two SST's, respectively.

Now under way is the initial phase of competition among airframe and engine manufacturers for contracts to proceed with development of the airplane. Key target dates in the program are submission of initial design proposals by January 15, 1964, test flights of the plane by 1968 and certification to enter commercial service by the middle of 1970.

Pending Congressional approval, the government is prepared to provide financial assistance to the manufacturers to built the plane, recapturing these costs through the royalty arrangements with the airlines.

MANY FAA'ers ACTIVE PILOTS

More than a fifth of FAA employees are doing their part to promote and encourage aviation in the most personal fashion—they fly themselves.

A recent study shows that 9,893 Agency people are active pilots. Aeronautical ratings are broken down as follows: private rating—4312 (including 33 women); commercial—4257 (24 women); air transport—965; student—359 (one woman).

Traffic Control Familiarization Courses Offered

FAA is accepting applications from people in government and industry to attend general familiarization courses in air traffic control procedures and problems.

Two free courses are being offered at FAA's Aeronautical Center in Oklahoma City for those who will find a general understanding of air traffic control useful in their work, which may or may not be directly related to actual air traffic control operations.

A four-day course is designed for individuals engaged in operational or management work requiring some basic understanding of air traffic control, but who do not have any direct responsibility for any aspect of air traffic control. The two-week course is intended for those who work directly in a field related to traffic control, but not in the actual work of controlling air traffic.

Over 1500 individuals from aviation and related industries, government and military organizations have received familiarization training over the past four years.

Classes are generally limited to about 16 students each. Both courses are given during each month and are scheduled on an alternate basis.

Those interested in taking either course should write to the Director, FAA Academy, P. O. Box 1082, Oklahoma City, Okla., for specific information on schedules and vacancies.

VORTACs Will Be Used for Instrument Approaches

FAA plans to establish instrument approach procedures at a number of secondary airports by utilizing existing enroute VORTAC facilities located in the vicinity of the airports.

FAA Administrator N. E. Halaby told a recent convention of the National Business Aircraft Association that flight tests conducted over the last 18 months have shown the feasibility of instrument approaches down to a 500-ft. ceiling and one mile visibility with this method.

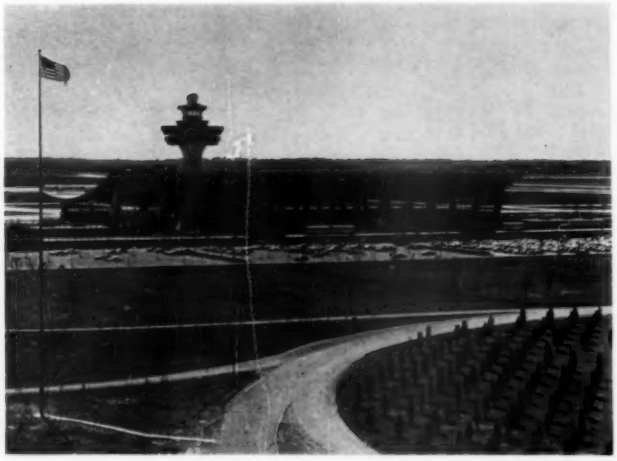
"Last year," Halaby said, "we flight checked some 17 enroute VORTAC facilities at 54 airports that ranged in distance from 5 to 35 miles from the VORTAC facility. The results were good and the idea began to look practical.

"This spring," he continued, "we inaugurated a series of hundreds of flight tests and flight simulations at the FAA Aeronautical Center at Oklahoma City to determine pilot-aircraft capability to complete instrument approaches to runways located a considerable distance from the VORTAC facility. Tests are still going on, but we have long been convinced that the idea is feasible.

"We now anticipate that under existing criteria FAA will be able to put the plan into operation at a good number of airports before the end of the year."

PIONEER AVIATOR HONORED

This full-length statue of aviation pioneer Wiley Post was unveiled recently in Oklahoma City's Civic Center. Although Post is best known by most people as the first to fly solo around the world, his aeronautical probings into new flight paths were equally noteworthy. Post's research into the possibilities of aviation in the stratosphere led to his discovery of the jet stream and the development of the first successful full-pressure suit for pilots. He is recognized as the one who prepared man and airplane for flight in the rarefied air of the atmosphere. Both the high-altitude suit and his airplane, Winnie Mae, *are now on display in the Smithsonian in Washington.*



Striking architecture greets visitors from overseas on their arrival to U. S.

Dulles Interr

Above and right, terminal is designed to limit walking to about 150 feet.

Control tower at Dulles. In background is jet parking apron.

tional Airport Marks First Year

The imaginative planning that went into Dulles International has proved itself as the airport rounds out its first year of operation this month.

New concepts—mobile lounges, separation of parked aircraft from the terminal, the amalgam of beauty and functional design, the spaciousness of 10,000 acres—have made Dulles an efficient and beautiful portal to the Nation for an estimated 650,000 passengers this year.

Transport operations which were zero a year ago are now nearing the ninety a day mark. Total operations for the first 12 months were approximately 79,500—a level that O'Hare did not reach until its third year of operation and Idlewild did not reach until its fourth. All ticket counter space has been sold and the passenger volume is increasing. For the passenger, Dulles International is the realized ideal. The Dulles passenger walks less than 150 feet from his limousine to his seat in the airplane. There is no dust, noise, or waiting in the too cold or too hot corridors of the usual airport "finger." The Dulles terminal is as modern as flight itself.

It is as an international port of entry and departure, however, that Dulles is making news. For the first time in decades, travelers from the Nation's Capital are again embarking directly for overseas destinations. And today's passengers are different.

In former days, the overseas voyagers from the Washington area were Virginia or Maryland planters shipping out of nearby Alexandria in sail and steam packets loaded with cargos of cotton and tobacco. Today's Dulles passenger may be a

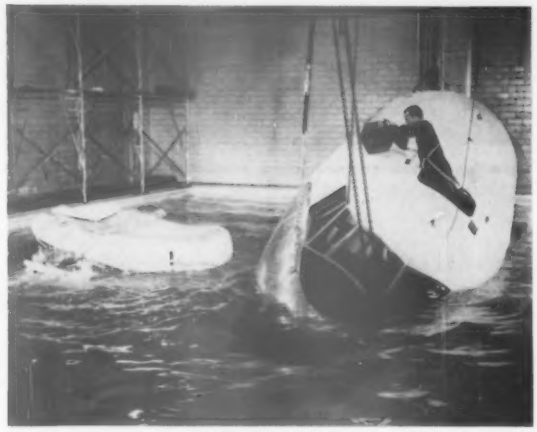
Above and clockwise: Boeing 720B jet lands at Dulles International; passengers from overseas leave airplane over telescoping walkway to mobile lounge; at terminal area located half a mile away from jet parking apron, passengers leave lounge for short walk through customs and immigration.

Member of Congress, a financier from the International Bank or a famed Washington correspondent.

The incoming travelers going through customs at Dulles are no less glamorous. Recent arrivals on an overseas flight from London included a cheek-whiskered Admiral from the Royal Navy, a member of a U. S. diplomatic team returning from the Moscow test ban negotiations and a Nigerian doctor visiting the United States for a medical seminar.

For those foreign visitors first setting foot on American soil at Dulles, the magnificence of the terminal and the dignity of the countryside make a most fitting introduction. This is the United States at its best.

Left, fuselage with five Air National Guardsmen is lowered into survival pool at FAA's Civil Aeromedical Research Institute, Oklahoma City. Below, raft is inflated and crew begins to leave aircraft during one of six simulated ditching runs using varying exits.



WATERY CLASSROOM

Oklahoma Air National Guardsmen got damp while training and researchers at FAA's Civil Aeromedical Research Institute (CARI) garnered important scientific data during a series of ditching exercises conducted for their mutual benefit.

Guardsmen, headquartered just across the Oklahoma City Municipal Airport from FAA's Aeronautical Center, are required to practice getting out of a land plane that has ditched at sea. The Oklahoma Air National Guard has been flying C-97 troop carriers to Japan and will soon be making European trips.

FAA's CARI is studying aircraft design with a research eye on improving survival chances from a ditched aircraft. Movies were made of six different ditching attempts from a fuselage dropped into CARI's survival pool. Water nearly filled the cockpit of the test fuselage and covered the floor in the passenger area.

At the sound of the ditching bell in the aircraft, the five guardsmen pushed a life raft out a cockpit window. This promptly inflated and out piled the crew and emergency radio equipment. This particular evacuation exercise took 1:10.8 minutes. Other evacuation procedures were tried from the forward hatch and from the top of the fuselage.

Distinctive mammato-cumulus cloud associated with thunderstorm activity.

Lenticular or "roll" clouds, often an indication of areas of turbulence.

CLOUDS

Signposts in the Sky

This is the eighth in a series of articles prepared by meteorologists of the Weather Bureau.

Clouds are the most visible signs in the sky of nature's forecasts. Three years ago, when TIROS weather satellites began photographing the earth from 450 miles in space, weathermen discovered that cloud patterns formed natural weather maps with a startling likeness to the maps prepared at weather stations around the world.

Because their location, shape and movement depend on the motion, humidity and temperature of the atmosphere, clouds convey important messages to those who understand their meaning. Early sailors relied on the warnings of the clouds; with a little study, pilots can profitably use them too.

Clouds can help the pilot make important flight decisions. They also can form a ceiling and steal the VFR pilot's visual reference to the ground. At worst, they can envelop him, leaving him trapped, confused, lost.

Weathermen divide clouds into three principal families—low, middle and high—according to the altitude of the cloud base above the ground. A fourth family, called "clouds of considerable vertical development," may extend from near the ground to 75,000 feet or more and produce all the other types of clouds.

The terms "low," "middle" and "high" are relative and have no specific limits. However, in the United States, low clouds generally have bases between the surface and 6,000 feet, middle clouds have bases between 6,000 and 20,000 feet, and high clouds have bases 20,000 feet or more above the ground. These heights may vary with the season, the latitude and the terrain.

Cloud height has a direct bearing on icing conditions, and

Actual cloud formation photographs taken by TIROS weather satellite from several hundred miles in outer space and transmitted to read-out stations on earth.

knowledge of the different physical makeup of low, middle and high clouds can help the pilot in his flight planning.

Low clouds are nearly always made up of water droplets. Middle clouds may be either water droplets or mixed water droplets and ice crystals. High clouds are almost always composed entirely of ice crystals.

Within the cloud families, there are two distinct and easily recognized types—cumulus and stratus. Cumulus means piled up or accumulated, and cumulus-type clouds are always lumpy like the head of a cauliflower. Generally, they appear to be much whiter than other clouds.

Stratus-type clouds are layers or sheets, generally shallow and grayish, without well-defined edges. Fog is a stratus cloud at the surface. Both cumulus- and stratus-type clouds may occur at low, middle, or high levels, and the two are often present at the same time.

The bumpy cumulus and the smooth stratus forms tell the pilot exactly what conditions he can expect to encounter when flying through them. *Cumuliform clouds—produced by rapid, sometimes irregular lifting and cooling—indicate turbulence. Stratiform clouds—produced by slower, sustained lifting—indicate smoother air.*

Water droplets are larger in the cumulus type of cloud than in the stratus type. Since larger droplets freeze more slowly, cumuliform clouds tend to cause clear or glaze icing, while stratiform clouds produce rime icing.

Stratus-type clouds are associated with warm fronts where air is lifted slowly up the shallow frontal slope. (*see FAA Aviation News*, August 1963.) Cumulus-type clouds are typical of cold front activity.

A few cloud forms are considered important enough to be mentioned in aviation weather reports whenever they are observed. All pilots should be able to recognize these types: *towering cumulus*, abbreviated TCU in teletypewriter reports: *cumulonimbus*, abbreviated CB; *mammato-cumulus*, abbreviated CM; *standing lenticular altocumulus*, abbreviated ACSL; *alto-cumulus castellanus*, abbreviated ACC; and *virga*, which has no abbreviation. Other cloud types *may* be mentioned in the reports when the observer feels they are significant to the pilot. The forms listed above must be included. All are cumuliform in nature except virga, which often occurs in association with the cumulus type of cloud. All are found at low or middle levels where most general aviation traffic moves.

Towering cumulus clouds are massive, with great vertical development and rapid growth. Turbulence associated with these clouds is generally moderate to heavy. Inside the clouds, there are irregular updrafts and no downdrafts. *A TCU can become a cumulonimbus or a thunderstorm in minutes.*

Cumulonimbus is the mature thunderstorm cloud, extending upward through the icing level. Thunder and lightning may accompany it, and showers may fall from its base. Cumulonimbus and towering cumulus were both discussed in the June issue of *FAA Aviation News*.

Mammato-cumulus is also associated with thunderstorm activity and frequently occurs in the vicinity of hailstorms. The ominous mammato-cumulus, with its heavy, sagging pouches, is rarely forgotten once seen.

Altocumulus castellanus, a middle-level cloud, warns of the presence of the atmospheric instability necessary for thunderstorm development. Often these clouds will appear in a nearly clear sky during the morning hours before low-level cumulus begin to form. They are similar to towering cumulus, except that the cloud elements usually are smaller. The cloud mass is extremely changeable, with small towers or turrets constantly appearing and dissolving. Often, the ACC disappears before the formation of cumulus clouds, which later become the promised thunderstorms.

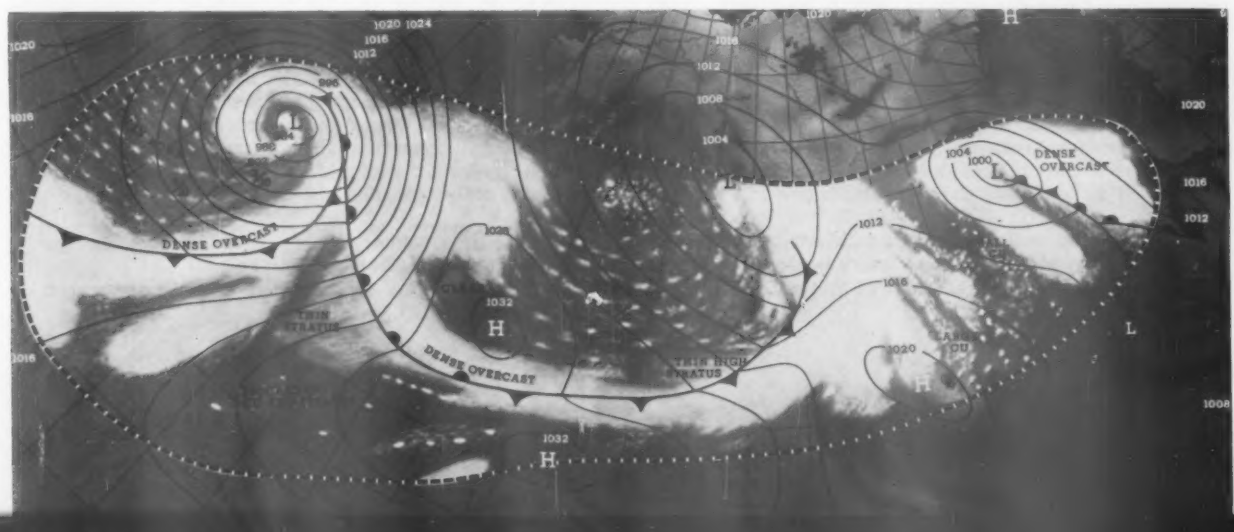
Altocumulus, standing, lenticular (ACSL) are middle-level clouds with characteristic lens or almond shapes. These unique clouds stand still while the wind blows rapidly through them. The cloud is continuously forming on the upwind side and dissipating on the downwind side. Lenticular clouds often mark the existence and location of mountain waves, which are areas of turbulence to be avoided by most aircraft.

Virga is composed of water or ice particles that fall from a cloud but evaporate before they reach the ground. Virga may occur with low or middle clouds of either the cumulus or stratus types. It sometimes resembles hair—thin and curled at the lower end, heavier and straighter near the cloud base. *Virga often precedes the onset of precipitation, and pilots should be alert for lowering visibilities and ceilings.*

Pilots should not minimize the hazards of stratus-type clouds just because observers are not required to report them. Stratiform clouds are generally more extensive and persistent than cumuliform clouds, restricting visibility over large areas for long periods of time. They may bring continuous precipitation, although usually lighter than that associated with cumulus-type clouds.

Widespread stratus-type clouds may appear quite suddenly over one or more airports in a matter of minutes. In flight, decreasing visibility—caused by increasing moisture in the air—often precedes stratus formation. When objects on the ground begin to seem fuzzy, the pilot should prepare to change his flight plan. A PIREP, as well as a check on the weather, is in order if increasing amounts of stratus clouds are encountered contrary to forcasts.

Same TIROS cloud photographs (*opposite page*), superimposed on conventional Weather Bureau map, show storm family building up over the North Pacific.



SAFETY FIRST

Winter Flying

The dos and don'ts of cold weather flying should be as familiar to the general aviation airman as the unicom frequency.

But they're not.

The results are accidents, near accidents, deaths, injuries and, at best, embarrassment.

All unnecessary, of course, if pilots follow a few safety rules:

- Remember winter days are short. Navigation and landing lights should be in working order. Pilots who are not checked out for night operations should plan flights so as not to be caught aloft after dark.
- Check cabin heaters. Carbon monoxide is an ever present danger in aircraft which utilize engine exhaust gases in heating cabin air. Cracks or holes in this heating unit can cause deadly carbon monoxide to leak into the cabin (*see FAA Aviation News*, October 1963).
- Check engine manufacturer's instructions and change to lighter oil, if recommended.
- Guard against condensation. Water in the fuel line can seriously affect engine performance.
- Keep gas tanks filled when not flying. This helps prevent condensation. Drain the sediment bowl, where condensation gathers, both before takeoff and after landing.
- Check carburetor heat control to make sure it is operating properly throughout its entire range.
- Check carburetor air temperature gauge—the device that warns of carburetor icing conditions.
- Oil gets sluggish in cold weather. Preheat both engine and oil if the airport provides such service. Never use a blowtorch. Fire and gasoline are compatible only in a Molotov cocktail.
- Inspect wheel wells on aircraft with retractable landing gear before every takeoff and after every landing. Also, after takeoff from a snow or slush-covered runway, actuate the landing gear a few times to shake loose any moisture that might have been picked up. These precautions will help prevent the gear from freezing in the well.
- Never attempt takeoff with snow, frost or ice on the wings or the control surfaces. You might not make it.
- When flying in rain or snow be on guard against runback which can freeze and block the pitot and static air pressure sources. This will change the pressure transmitted to the airspeed, altitude and rate-of-climb instruments and cause incorrect readings.
- Effects of icing can be combatted with proper de-icing equipment and procedures. Temporary protection of external surfaces also may be obtained by application of a commercial anti-ice preparation prior to takeoff.
- Check the airports, particularly when in the snow belt. Find out what the runway conditions are before trying to land. Patches of snow or ice can cause serious trouble. Watch the braking action.

Weather, of course, is the major consideration in winter flying. If it is even slightly questionable, the VFR pilot should stay on the ground.

When he does fly, he should file a flight plan and take advantage of preflight and inflight weather briefings and the Flight Following Service. If he files a flight plan, even a pilot without two-way radio can be assured that a search will be started if he is too long overdue at his destination.

To cope with cold weather mechanical hazards, pilots should study their engine and aircraft handbooks and follow recommended procedures for winter operation. These rules will usually include methods for protecting the crankcase and will note the proper fuel and oil for low temperature conditions.

Above all, remember the words of the poet Shelley: "If Winter comes, can Spring be far behind?"

Make sure you're around to welcome in the new season.

Letters

FAA

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. Please keep them brief. No anonymous letters will be used, but names will be withheld on request.

• Helping Hand

During the period from August 17 thru 31 our unit, 302 Air Traffic Control Co., was on active duty for training at Camp Pickett, Va. Because of the flying associated with the unit, we came in close contact with the personnel at the Blackstone Flight Service Station located at Camp Pickett.

Within the last few months our unit was reorganized to provide enroute air traffic regulation and identification, navigational aids, other air warning assistance to in-flight aircraft, and assistance to divisions in regulating air traffic in forward areas.

Mr. Frederick J. Mayne, Chief of the Blackstone Flight Service Station, upon hearing this, said: "It sounds like a small F.A.A." He arranged to give us as much assistance in our training as possible. Film strips were shown and lectures were given by the men at the station. They also guided us on a tour of the local navigational sites and the F. S. S.

The men at the station gave up a good bit of their free time for this. It was greatly appreciated and of great value to the unit. We thank them.

Lt. John R. Wren, USAR
Philadelphia

• Cross-Country Requirements

As a student pilot, I would like to be advised on the cross-country flight time requirements for a private pilot certificate.

Harold Bettison
Santa Barbara, Calif.

These requirements are contained in the Federal Aviation Regulations, *Part 61, Section 61.85 (a)(3). This section states that an applicant for a private pilot certificate must have at least 10 hours of solo cross-country flight time.*

To qualify as a cross-country flight, each trip must include a landing at a place more than 25 miles from the point of departure. In addition, one flight must include a landing at a place more than 100 miles from the departure point.

• Limited Flight Instructors

I am a holder of a Limited Flight Instructor (LFI) certificate which expired some time ago. I understand the regulations governing issuance of these ratings have been changed, and I would like to know what steps must be taken in order to convert my LFI certificate to a regular flight instructor certificate.

George M. Krieger
New York City

LFI ratings were discontinued by FAA in May, 1962. Holders of current LFI certificates may exchange them for regular flight instructor certificates without a further demonstration of competence. Holders of expired certificates must demonstrate continued ability to give flight instruction in accordance with Part 61 of the Federal Aviation Regulations *in order to qualify for regular flight instructor ratings. Application should be made at the nearest FAA General Aviation District Office.*

• Life Preserver Lights

Why doesn't FAA require some type of lights on life preservers to provide for night ditchings in water? This could be some type of fluorescent life jacket that would glow continuously when it came in contact with the water, or a life jacket with a battery-operated light attached.

Glenn L. Frister
Aurora, Ill.

On August 5, FAA issued a Notice of Proposed Rulemaking which would require a means of illumination on each life preserver and life raft carried aboard airline aircraft. The period for comment on this rule has expired and the Agency expects to promulgate the final rule shortly.

• Have a Seat

Can you advise me if there is any rule as to just where a pilot is required to sit in side-by-side, dual-control aircraft? Is it permissible for a private pilot to ride in the right seat and allow a student pilot or passenger to ride in the left seat of such an aircraft?

E. M. Compton
Spartanburg, S. C.

There is no Federal Aviation Regulation *requiring the pilot of side-by-side, dual-control aircraft to sit in any particular pilot seat, but it has become accepted custom for the pilot-in-command to occupy the left seat. One reason for this is that the majority of airport traffic patterns are left-handed. Thus, the left seat provides better visibility for reading light signals from the control tower and for keeping other aircraft circling to the left in view.*

There are many exceptions to this custom. For example, when a flight instructor is conducting student pilot instruction, the student customarily occupies the left control seat. Also in the side-by-side, dual-control helicopter, the pilot-in-command frequently occupies the right control seat.

In most cases, it is a matter of choice as to which seat the pilot-in-command wishes to occupy. Therefore, it is permissible for a private pilot who is properly rated and current for the aircraft to occupy the right seat and a student pilot or passenger to occupy the left one.

• Weather Series

The reprints of the article on the "lost pilot" over California had a tremendous impact on every member of our club and from pilots to whom I gave a copy. It is this sort of information that will make aviation better and safer for all of us.

I think it would be wonderful, too, if all your monthly articles on aviation weather were reprinted in one publication and distributed to every pilot of record. Each article was handled and presented simply.

Sid Barry
Flushing, N. Y.

A good idea. Upon the conclusion of the series on aviation weather, we will look into the possibility of reprinting the articles as a single pamphlet.

• Overseas Flying Experience

I learned to fly approximately four years ago in California while on vacation from Brazil. Since that time I have accumulated approximately 140 hours of flying time, which includes approximately 100 hours of solo time. However, since I have been living in Brazil, I have been unable to take the examination for a private license given in the United States.

I would like to, therefore, obtain a private license in the U. S. when I establish residence there. It is my understanding that the solo time in Brazil would count toward the time required for a U. S. private license. Is this the case?

E. J. Bauer
Salvador, Bahia, Brazil.

Aeronautical experience required for a private pilot certificate is specified in the Federal Aviation Regulations, *Part 61, Section 61.85. The flying time you have accumulated may be accredited toward these requirements as appropriate. However, the three hours of flight instruction prescribed in Section 61.85 (a)(4) must be given by a flight instructor certificated by FAA.*

• Air Taxi Operations

Would you please advise us on the use of DC-3 aircraft in certificated air taxi operations.

Name Withheld

The pertinent regulations are Part 42 of the Civil Air Regulations *and Part 298 of the* Civil Aeronautics Board Economic Regulations. *Part 298 specifies that aircraft used in air taxi operations must not exceed 12,500 pounds, which rules out the DC-3. However, CAB has authority to grant exemptions from Part 298. Requests for exemptions should be addressed to the Civil Aeronautics Board, Washington, D.C. 20428.*

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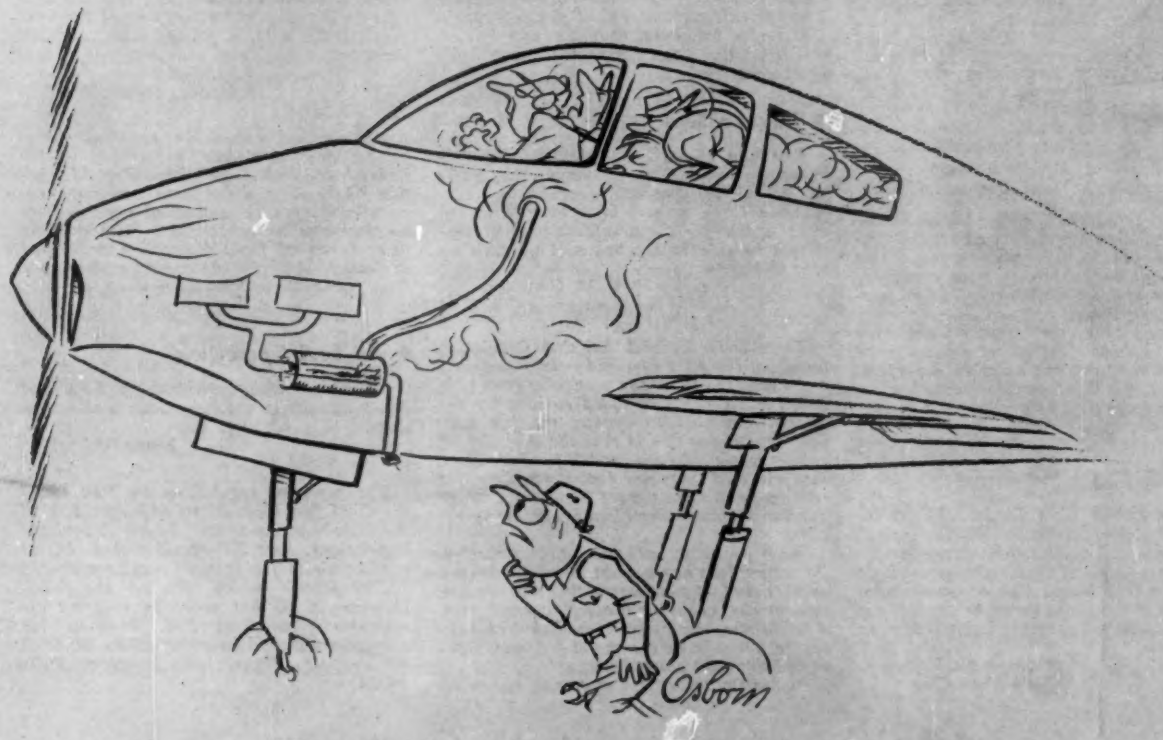

They leak and then–a permanent chill.